

CLAIMS

1. A cutting tool comprising:

a tool holder including a base, lateral surfaces extending upward from the base to an uppermost edge of each lateral surface, a top surface connecting uppermost edges of the lateral surfaces, a slot in a first of the lateral surfaces extending through the top surface, and an opening in the first lateral surface intercepting the slot,

a retainer having a perimeter surface dimensioned to be received in the opening in the tool holder first lateral surface through movement of the retainer relative to the tool holder along a line of action, the retainer including a planar tapered surface inclined with respect to the line of action and intersecting the perimeter surface, and

a cutting bit including a generally rectangular body portion dimensioned to be received in the slot at a fixed orientation, an upper end projecting above the tool holder top surface and including a cutting surface, and a lower planar tapered portion obliquely inclined to face laterally and upwardly and positioned for contact by the retainer planar tapered surface so that a downward and laterally inward force can be applied to the cutting bit by the retainer to maintain the cutting bit in the tool holder slot.

2. The cutting tool of claim 1 wherein the tool holder slot and the body portion of the cutting bit are both generally rectangular.

3. The cutting tool of claim 1 wherein the opening in the first lateral surface of the tool holder is circular and the retainer comprises a cylindrically shaped body having an axis aligned with the line of action.

4. The cutting tool of claim 1 wherein the tool holder further comprises an opening in a second of the lateral surfaces aligned with the line of action and a tension element extending between the retainer and the second lateral surface for applying a force drawing the retainer into the tool holder opening.

5. The cutting tool of claim 4 wherein the tension element comprises a screw threaded fastener engaged in a threaded opening in the retainer, the fastener having a head positioned outside the second lateral surface of the tool holder.
6. The cutting tool of claim 1 wherein the tool holder further comprises an opening in a second of the lateral surfaces aligned with the rectangular slot, and wherein the rectangular body portion of the cutting bit includes an opening alignable with the opening in the second lateral surface and adapted to receive a fastener.
7. The cutting tool of claim 1 wherein the cutting bit body portion has a lateral dimension exceeding the lateral dimension of the tool holder rectangular slot so that an edge of the cutting bit body portion projects from the tool holder first lateral surface.
8. The cutting tool of claim 1 wherein the lower planar tapered portion of the cutting bit is upwardly inclined at an angle of between about 1° and 5° and laterally inclined at an angle of between about 5° and 15°.
9. The cutting tool of claim 1 wherein the tool holder base is arcuately concave to facilitate fixation of the tool holder to a cylindrical drum.
10. The cutting tool of claim 1 wherein the tool holder base is angled to set a desired rake angle for the cutting bit relative to the drum.
11. The cutting tool of claim 1 wherein the tool holder includes front and rear surfaces that are generally perpendicular to the lateral surfaces.
12. The cutting tool of claim 1 wherein the cutting surface of the cutting bit comprises a carbide insert fixed in a step in the upper end.
13. A cutting bit comprising a generally rectangular elongated body having an upper end including a cutting surface, a lower end, and a lower planar tapered portion obliquely inclined to face laterally and upwardly.

14. The cutting bit of claim 13 wherein the lower planar tapered portion of the cutting bit is upwardly inclined at an angle of between about 1° and 5° and laterally inclined at an angle of between about 5° and 15°.

15. The cutting bit of claim 13 wherein the cutting surface comprises a carbide insert fixed in a step in the upper end:

16. The cutting bit of claim 13 wherein the rectangular body portion includes an opening adapted to receive a fastener.

17. The cutting bit of claim 16 wherein the opening in the rectangular body portion is laterally aligned with respect to the cutting surface.

18. A rotary driven cutter having a surface curved about a rotation axis of the cutter and a plurality of cutting tools mounted on the curved surface, each of the cutting tools comprising:

a tool holder including a base fixed to said curved surface, lateral surfaces extending radially outward from the base to an outermost edge of each lateral surface, a crown surface connecting outermost edges of the lateral surfaces, a slot in a first of the lateral surfaces extending through the crown surface, and an opening in the first lateral surface intercepting the slot,

a retainer having a perimeter surface dimensioned to be received in the opening in the tool holder first lateral surface through movement of the retainer relative to the tool holder along a line of action, the retainer including a planar tapered surface inclined with respect to the line of action and intersecting the perimeter surface, and

a cutting bit including an angular body portion dimensioned to be received in the slot at a fixed orientation, an upper end projecting above the tool holder crown surface and including a cutting surface, and a lower planar tapered portion obliquely inclined to face laterally and radially outwardly and positioned for contact by the retainer planar tapered surface

so that a radially and laterally inward force can be applied to the cutting bit by the retainer to maintain the cutting bit in the tool holder slot.

19. The rotary driven cutter of claim 18 wherein the opening in the first lateral surface of the tool holder is circular, the tool holder further comprises an opening in a second of the lateral surfaces aligned with the line of action, and the retainer comprises a cylindrically shaped body having a central threaded opening aligned with the line of action.

20. The rotary driven cutter of claim 19 further comprising a threaded tension element engaging the central threaded opening of the retainer and extending between the retainer and the second lateral surface of the tool holder, the tension element having a head positioned outside the second lateral surface of the tool holder for applying a force drawing the retainer into the tool holder opening.

21. The rotary driven cutter of claim 20 wherein the lower planar tapered portion of the cutting bit is radially inclined at an angle of between about 1° and 5° and laterally inclined at an angle of between about 5° and 15° , and the planar tapered surface of the retainer is inclined at an angle approximating the laterally inclined angle of the cutting bit.

22. The rotary driven cutter of claim 21 wherein the tool holder slot is generally rectangular and the body portion of the cutting bit is square and dimensioned to exceed the lateral dimension of the tool holder slot so that an edge of the cutting bit body portion projects from the tool holder first lateral surface, the body portion of the cutting bit including an opening alignable with a further opening in the second lateral surface for receiving a fastener.